

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Total Maximum Daily Load Information Sheet

Dardenne Creek

Water Body ID: 219 and 221

Water Body Segments at a Glance:

Counties:	St. Charles
Nearby Cities:	St. Peters and St. Charles
Water Body ID:	219
Length:	7.0 miles
Pollutant:	Low Dissolved Oxygen
Source:	Unknown
Water Body ID:	221
Length:	16.5 miles
Pollutants:	Inorganic Sediment and Aquatic Macroinvertebrate Bioassessment
Source:	Unknown



Schedule for TMDL Development:

TMDL development schedules are subject to change.

The most current schedule for TMDL development is available on the department's website at dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-progress.htm

Description of the Problem

A water body is considered impaired when it fails to meet applicable water quality standards. Water quality standards consist of designated uses, water quality criteria, an antidegradation policy and implementation procedures. Dardenne Creek is impaired due to violations of water quality criteria that protect aquatic life designated uses.

Designated uses of Dardenne Creek*

- Warm Water Habitat (WWH)
- Whole Body Contact Category B (WBC-B)
- Secondary Contact Recreation (SCR)
- Human Health Protection (HHP)
- Irrigation (IRR)
- Livestock and Wildlife Protection (LWP)

* In addition to these specific uses, all waters of the state are protected by the general water quality criteria that are specified in the state's Water Quality Standards at 10 CSR 20-7.031(4).

Designated uses that are impaired

- Warm Water Habitat (WWH)
- General criteria

Criteria that apply

- Missouri Water Quality Standards at 10 CSR 20-7.031(5)(J) and Table A state that water contaminants shall not cause dissolved oxygen to be lower than 5 mg/L in waters designated for warm water habitat.
- Missouri streams are also protected by the general criteria found at 10 CSR 20-7.031(4). The particular general criteria that apply to Dardenne Creek include:
 - (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly, or harmful bottom deposits or prevent full maintenance of beneficial uses.
 - (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses.
 - (G) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community.

Background information and water quality data

Dardenne Creek has its headwaters in Warren County and flows through several municipalities in St. Charles County before entering the Mississippi River. The Dardenne Creek watershed is approximately 164 square miles.

A water body is judged to be impaired for low dissolved oxygen if more than 10 percent of measurements fail to meet the water quality criterion. In the case of water body ID, or WBID, 219 of Dardenne Creek, 19 of 71 measurements, or 27 percent, were less than 5 mg/L (Figure 1).

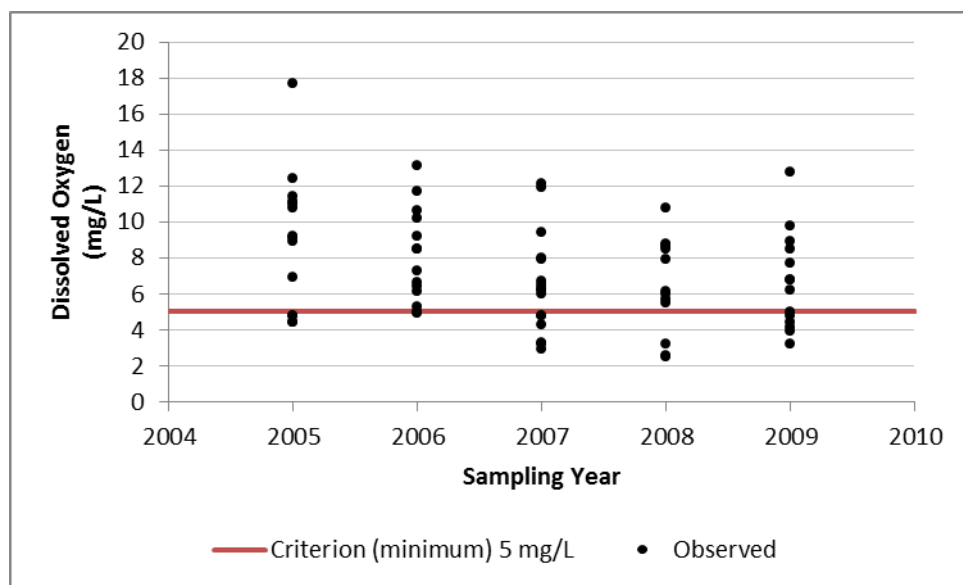


Figure 1. Dissolved oxygen data from Dardenne Creek, WBID 219 (2005 – 2009)

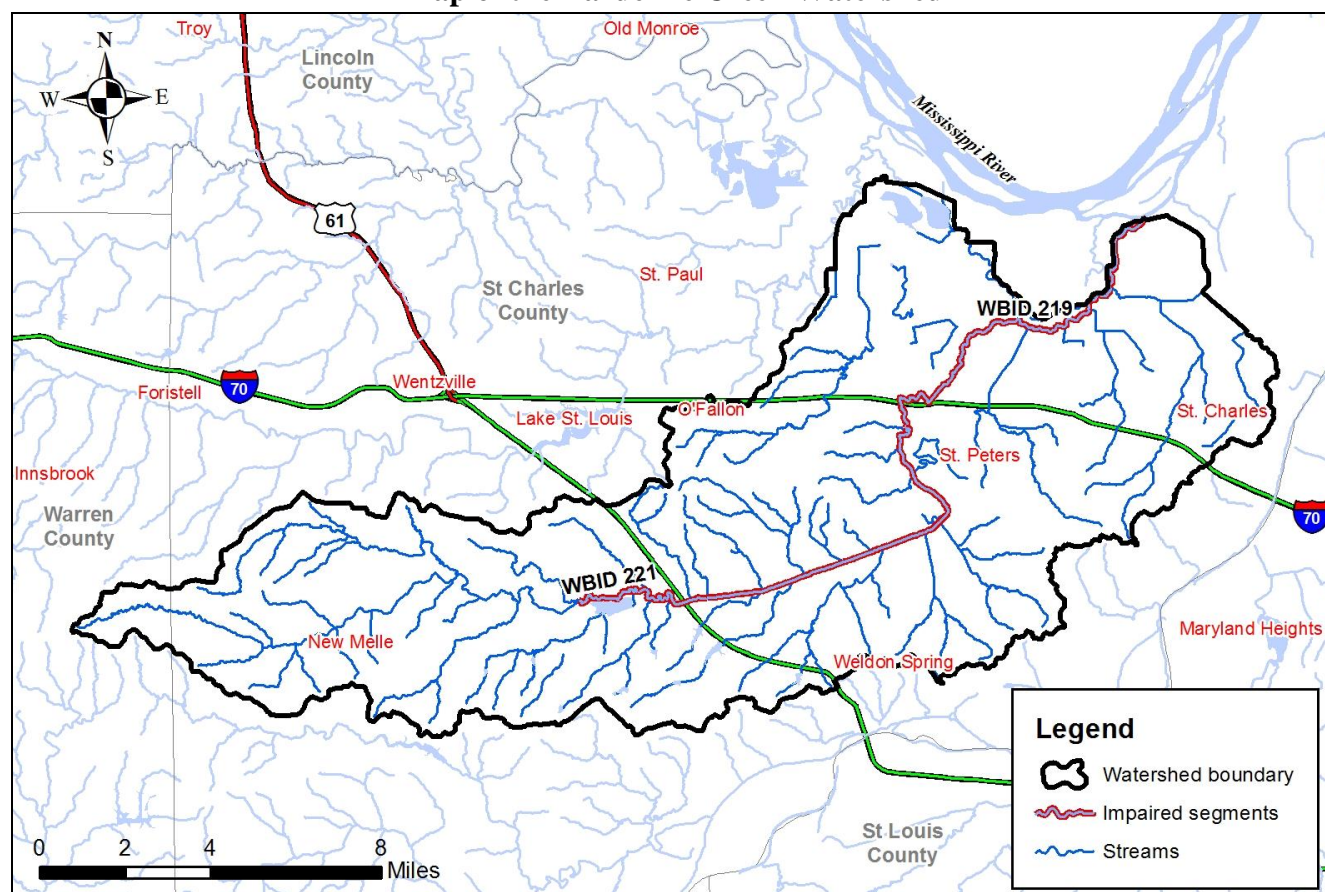
Aquatic macroinvertebrate communities are judged to be impaired if the percent of sampling sites receiving a score of 16 or more is significantly less than for reference stream located in the same ecological drainage unit. Scores of 16 or more are considered to reflect an unimpaired condition. For Dardenne Creek, WBID 221, macroinvertebrate scores were less than 16 during three of the four periods sampled (Table 1).

Table 1. Aquatic macroinvertebrate scores for Dardenne Creek, WBID 221

<i>Sampling Organization</i>	<i>Season and Year</i>	<i>Score</i>
Missouri DNR	Spring 2002	14
Missouri DNR	Fall 2002	16
Missouri DNR	Fall 2008	12
Missouri DNR	Spring 2009	14

For sediment, the percent of the stream bottom covered with fine sediment is compared to that of control streams. In 2008, data for Dardenne Creek showed an average of 58.25 percent of the stream bottom was covered in fine sediment compared to 37.37 percent of control streams. Further statistical tests determined that the amount of fine sediments present in Dardenne Creek is significantly greater than sediment deposition found in control streams.

Map of the Dardenne Creek Watershed



TMDL for Dardenne Creek

The Dardenne Creek TMDL will calculate the maximum amount of each listed pollutant that the stream can receive and still meet water quality standards. The TMDL will also identify all potential or suspected pollutant sources in the watershed and distribute the allowable pollutant loads among those various sources. When developed, the Dardenne Creek TMDL will use the most current and available data. For this reason, the final TMDL may present information that differs from that contained in this information sheet.

For more information call or write:

Department of Natural Resources
Water Protection Program – Watershed Protection Section
P.O. Box 176
Jefferson City, MO 65102-0176
Ph: 1-800-361-4827 or 573-751-1300
Fax: 573-526-6802
Email: TMDL@dnr.mo.gov
Program Home Page: dnr.mo.gov/env/wpp/index.html